

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 13,864.

Port of Leith Date of First Survey 18-6-20 Date of Last Survey 5-11-20 No. of Visits 6
 No. in 7 on the Iron or Steel S. S. LANRICK Port belonging to Leith
 Book Leith By whom Messrs Hawthorn & Co Ltd When built 1920
 Owners Messrs Geo. Gibson & Co Ltd Owners' Address 64 Commercial St Leith
 Ord No. 177 Electric Light Installation fitted by Hawthorn & Co Ltd When fitted 1920

DESCRIPTION OF DYNAMO, ENGINE, ETC.

Open Fronted Vertical Single cylinder Eng. by Robey & Co Lincoln direct coupled to compound wound Dynamo by Campbell & Colwood
 Capacity of Dynamo 54 Amperes at 110 Volts, whether continuous or alternating current Continuous
 Where is Dynamo fixed Starboard side of Engine Room Whether single or double wire system is used double wire
 Position of Main Switch Board beside Dynamo having switches to groups four of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each passage below Navigating Bridge 8 switches
Steering Gear 4 switches brews Quarters left 2 switches Engine Room beside Engine Room Store 7 switches
 If fuses are fitted on main switch board to the cables of main circuit Yes and on each auxiliary switch board to the cables of auxiliary circuits Yes and at each position where a cable is branched or reduced in size Yes and to each lamp circuit Yes
 If vessel is wired on the double wire system are fuses fitted to both flow and return wires or cables of all circuits including lamp circuits Yes
 Are the fuses of non-oxidizable metal Yes and constructed to fuse at an excess of 100 per cent over the normal current
 Are all fuses fitted in easily accessible positions Yes Are the fuses of standard dimensions Yes If wire fuses are used are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit Yes
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases Yes

Total number of lights provided for 84 arranged in the following groups :-
 A Navigating & Accommodation lights each of 27-16 CP 4-32 CP candle power requiring a total current of 22.4 Amperes
 B Cargo lights 4 off lights each of 2 of 128 CP 2 off 96 candle power requiring a total current of 17.9 Amperes
 C Engine Room lights each of 15 of 16 CP candle power requiring a total current of 9.6 Amperes
 D lights each of 0028 candle power requiring a total current of Amperes
 E lights each of Amperes
2 Mast head light with 1 lamp each of 32 CP candle power requiring a total current of 2.56 Amperes
2 Side light with 1 lamp each of 32 CP candle power requiring a total current of 2.56 Amperes
4 Clusters Cargo lights of 2 off 256 & 2 off 192 candle power, whether incandescent or arc lights incandescent
 If arc lights, what protection is provided against fire, sparks, &c.

Where are the switches controlling the masthead and side lights placed in passage under Navigating Bridge

DESCRIPTION OF CABLES.

Main cable carrying 54 Amperes, comprised of 19 wires, each 16 S.W.G. diameter, .06 square inches total sectional area
 Branch cables carrying 22 Amperes, comprised of 7 wires, each 16 S.W.G. diameter, .022 square inches total sectional area
 Branch cables carrying 15 Amperes, comprised of 7 wires, each 17 S.W.G. diameter, .017 square inches total sectional area
 Leads to lamps carrying 2.56 Amperes, comprised of 1 wires, each 16 S.W.G. diameter, .003 square inches total sectional area
 Cargo light cables carrying 5 Amperes, comprised of 110 wires, each 36 S.W.G. diameter, .0048 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

Vulcanized India Rubber Lead covered wires in accommodation & brews Quarters & steel armoured wires served overall in cargo spaces & machinery spaces

Joints in cables, how made, insulated, and protected Soldered insulated with Rubber & waterproof Tapes protected by wood block recessed to suit or taken into provision ground pot fixed on wood block and where necessary covered with cast iron cover.

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances Yes Are all joints in accessible positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage

Are there any joints in or branches from the cable leading from dynamo to main switch board No

How are the cables led through the ship, and how protected under side of main deck clipped hard to iron deck by 3/8 lapped screws Turn vulcanized steel armoured & lead covered cable served overall.

DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible Yes

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture _____

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat _____

What special protection has been provided for the cables near boiler casings _____

What special protection has been provided for the cables in engine room _____

How are cables carried through beams in lead bush holes through bulkheads, &c. Bulkhead glands

How are cables carried through decks in iron deck pipes

Are any cables run through coal bunkers No or cargo spaces Yes or spaces which may be used for carrying cargo, stores, or baggage _____

If so, how are they protected Armoured & lead covered cable clipped up to under side of deck by 3/8" Lapped Screws

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage No

If so, how are the lamp fittings and cable terminals specially protected _____

Where are the main switches and fuses for these lights fitted _____

If in the spaces, how are they specially protected _____

Are any switches or fuses fitted in bunkers No

Cargo light cables, whether portable or permanently fixed Portable How fixed _____

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel _____

How are the returns from the lamps connected to the hull _____

Are all the joints with the hull in accessible positions _____

Is the installation supplied with a voltmeter Yes, and with an amperemeter Yes, fixed on main switchboard _____

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas _____

Are any switches, fuses, or joints of cables fitted in the pump room or companion _____

How are the lamps specially protected in places liable to the accumulation of vapour or gas _____

The copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than 2500 megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

HAWTHORNS & CO., LIMITED.

G. H. Murray Electrical Engineers

Date 9/14/20

COMPASSES.

Distance between dynamo or electric motors and standard compass 36'-0"

Distance between dynamo or electric motors and steering compass 118'-0"

The nearest cables to the compasses are as follows:—

A cable carrying <u>6</u> Amperes <u>1-6 x 3'-0"</u> feet from standard compass <u>1'-6"</u> feet from steering compass
A cable carrying _____ Amperes _____ feet from standard compass _____ feet from steering compass
A cable carrying _____ Amperes _____ feet from standard compass _____ feet from steering compass

Have the compasses been adjusted with and without the electric installation at work at full power Yes

The maximum deviation due to electric currents, etc., was found to be nil degrees on all courses, in the case of the standard compass and nil degrees on all course in the case of the steering compass.

HAWTHORNS & CO., LIMITED.

G. H. Murray Builder's Signature.

Date 9/11/20

GENERAL REMARKS.

The electric light installations have been fitted in accordance with the Society's rules

It is submitted that this vessel is eligible for THE RECORD. See Lt. Kelly 24/11/20

J. R. Williamson
Surveyor to Lloyd's Register of British and Foreign Shipping.

Committee's Minute

FRI NOV 26 1920

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

Im 9, 12.—Transfer.